
**Compliance Biology, Inc., "Results of Butterfly Surveys on Newhall Salt
Canyon Habitat Preservation Area, Los Angeles County, California"
(July 31, 2005)**

2005
Butterfly

**Results of Butterfly Surveys on Newhall Salt Canyon
Habitat Preservation Area,
Los Angeles County, California.**

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INTRODUCTION

At the request of Compliance Biology, Inc. (CBI), Guy P. Bruyera conducted a field survey of the Salt Canyon area within Newhall Land holdings in the Santa Clarita area of northwestern Los Angeles County, California. The specific goal of this survey was to assess potential suitability of the survey area (Salt Canyon) site as habitat to support the San Emigdio blue butterfly (*Plebulina emigdonis*, herein referred to as SEB), a federal species of concern. Surveys also included evaluation of additional habitats that may support other sensitive butterfly species known from the region. In addition to surveys for habitat that may support the SEB and other special status butterfly species, a general butterfly inventory was performed during three site visits in April and early May 2005. This report describes the relevant vegetation, topography, and present land use throughout the Salt Canyon site in an effort to assess the overall quality of the habitat as it pertains to special-status butterfly species and general butterfly diversity on the site.

Survey Location

Salt Canyon is generally located south of the \pm 4000-acre Newhall Development site west of Interstate Highway 5 (I-5) south of the Santa Clara River Basin and Highway 126 at the northwest portion of the Santa Susana Mountains (**Exhibit 1**). Included in this study was a preliminary survey to ascertain SEB flight season status on the western portion of the Newhall Development Oak Valley sub area where SEB occupied habitat was previously identified during 2004 surveys.

SENSITIVE BUTTERFLY SPECIES BACKGROUND INFORMATION

There are approximately 135 recorded butterfly species from Los Angeles County, of which approximately 120 are considered resident. Some species have adapted well to ornamental landscapes, but many formerly common species have now become increasingly rare over the past few decades due to urban expansion and other factors. Several butterflies presently (and/or historically) found in Los Angeles County are now protected or are otherwise considered species of special concern by federal agencies. Several additional species are considered to be rare by professional entomologists in the region, but are afforded no protection status by any regulatory agencies. A complete list of all sensitive butterfly species in the region is provided in **Table 1**. At least three butterfly species that once occurred in Los Angeles County are now presumably extinct. These include, 1) the unsilvered fritillary (*Speyeria adiastra atossa*), which was last observed near Mt. Pinos in 1959, 2) a very localized race of the Sonoran blue (*Philotes sonorensis*) that once occurred in the upper San Gabriel wash above Azusa (to 1968), and 3) the Palos Verdes blue (*Glaucopsyche lygdamus palosverdesensis*, herein referred to as PVB), which was last observed on the Palos Verdes peninsula in 1983.





Atriplex lentiformis locations*



Salt Canyon Site

*GPS marked patch (not individual plant)

Table 1.
Los Angeles County Sensitive Butterflies

Common Name	Scientific Name	Status	Range*
Quino Checkerspot	<i>Euphydryas editha quino</i>	FE	N
El Segundo Blue	<i>Euphilotes battoides allyni</i>	FE	N
Palos Verdes Blue	<i>Glaucopsyche lygdamus palosverdesensis</i>	FE	N
San Emigdio Blue	<i>Plebulina emigdiois</i>	[FSC]	Y
Santa Monica Mountains Hairstreak	<i>Satyrus auretorum fumosum</i>	[FSC]	N
Emmel's Eftin	<i>Callophrys mossi lililakupa</i>	[FSC]	N
Wandering Skipper	<i>Panoquina errans</i>	[FSC]	N
Alkali Skipper	<i>Pseudocopsocus curus</i>	[FSC]	N
Tehachapi Mountains Silverspot	<i>Speyeria egleis tehachapina</i>	[FSC]	N
Monarch Butterfly	<i>Danaus plexippus</i>	**	Y
Comstock's Blue	<i>Euphilotes battoides comstocki</i>	r	N
Bright Blue Copper	<i>Lycena heteronca clara</i>	r	N
Veined Blue	<i>Icaricia neurowia</i>	r	N
Green (=Skinner's) Blue	<i>Icaricia lupini chlorina</i>	r	N
Unsilvered Fritillary	<i>Speyeria adriaste atossa</i>	X	N
San Gabriel Mountain Sonoran Blue	<i>Philotes sonorensis extinctus</i>	X	N

*Indicates whether survey area is within known historical range of indicated taxon (Yes, No)
FE=Federaly endangered, [FSC]=Federal Species of Concern, r = species considered rare by professional entomologists (no status) X=Presumed extinct (no status), ** Over-wintering (or roosting) sites should be protected, butterfly probably not at risk currently

Three butterfly species known from Los Angeles County are now on the federal list of endangered wildlife. These include the El Segundo blue (*Euphilotes battoides allyni*, herein referred to as ESB), the quino checkerspot butterfly (*Euphydryas editha quino*, herein referred to as QCB), and the PVB.

The ESB is restricted to the coastal dune systems in southwestern Los Angeles County. The ESB is presently known from only three locations: 1) the dunes west of the Los Angeles International Airport (LAX); 2) the dunes west of the Chevron Oil refinery immediately south of LAX; and, 3) Malaga Cove north of the Palos Verdes peninsula. This butterfly is strongly associated with the flower heads of its host plant, coastal or dune buckwheat (*Eriogonum parviflorum*). Adults are active in a single brood from mid-July to early September.

No recent records for QCB exist from Los Angeles County. Populations of QCB are historically known from two locations in the Santa Monica Mountains, 1) Tapia Camp (1947), and 2) Point Dume (1954). Both of these colonies appear to have been extirpated, as adults have not been observed at or in the vicinity of either location since the mid-1950's. Most extant populations of QCB are known from southwestern Riverside County in the vicinity of Temecula and Murrieta, and southern San Diego County in the vicinity of Otay Mountain.

The PVB was restricted to the Palos Verdes peninsula where it flew in a single generation during February and March. This butterfly was strongly associated with its principal host



plant, milkvetch (*Astragalus trichopodus* var. *limchus*). The closest relative of the PVB is the southern blue (*Glaucopsyche lygdamus australis*), which occurs throughout most of the remainder of southern California. The southern blue is known to feed in the larval stage primarily on deerweed (*Lotus scoparius*), although larvae occasionally have been found on milkvetch.

The PVB was believed to have become extinct in 1983 when the last known large stand (approximately 120 plants) of milkvetch was eliminated by construction of a baseball field at Hesse Park on the peninsula. In the spring of 1994, a colony of what is considered by some researchers to be the PVB was discovered at a slightly more inland locality on Navy property in San Pedro. At this locality the butterflies are associated with both milkvetch and deerweed. Some researchers maintain that it is possible that genetic differences exist between seaward-facing peninsular populations of PVB and the extant Navy colony.

Several other butterfly species are considered uncommon in Los Angeles County, some having federal status (i.e., species of special concern), and others that warrant careful monitoring due to declining populations or extremely limited ranges within Los Angeles County. These include the San Emigdio blue (*Plebulina emigdionis*), the Santa Monica Mountains hairstreak (*Satyrium auretorum funosum*), the wandering skipper (*Panoquina errans*), and the Tehachapi Mountain silverspot (*Speyeria egleis tehachapina*).

Several additional butterfly species that appear to be declining (or may be extirpated) in Los Angeles County, but remain common in other areas of their respective ranges include the purplish copper (*Lycæna hellouides*), giant copper (*Lycæna xanthouides*), Columella hairstreak (*Strymon columella istapa*), southern sylvan hairstreak (*Satyrium sylvanum sylvanum*), western tailed blue (*Eueres amyntula*), coastal arrowhead blue (*Glaucopsyche piasus sagittigera*), California ringlet (*Cenonympha tullia californica*), and sylvan satyr (*Cercyonis sthenela sylvestris*).

Sensitive butterflies considered having potential for occurrence on the subject property based on known ranges, the presence of associated vegetation communities, elevations on site, host plant availability within the general vicinity, and other environmental requirements, are discussed in more detail below.

San Emigdio Blue Butterfly (*Plebulina emigdionis*)

The SEB is a federal species of concern and is restricted to southern California in lower Sonoran and riparian habitats from the Owens Valley south to the Mojave River and west to northern Ventura and Los Angeles Counties. This butterfly can be locally abundant in association with its primary host plant, four-wing saltbush (*Atriplex canescens*). This butterfly has also been observed in association with quail bush (*Atriplex lentiformis*) at scattered locations. The limited distribution of SEB was perplexing to early researchers based on the abundance and widespread distribution of its host plant, which occurs throughout the



western United States. SEB larvae have formed a symbiotic relationship with at least one ant species, *Formica pilicornis* (Ballmer et al, 1991). This may account for, at least in part, SEB's limited range. These ants presumably extract droplets (containing glucose and amino acids) from the nectary glands of SEB larvae and the ants offer the larvae protection from predators. This relationship is actually quite common among other members of the butterfly family Lycaenidae, to which the SEB belongs. The male butterfly is small (approximately 20-25 millimeters in wingspan) and is blue with a wide brown border on the dorsal wing surface. The slightly larger female is primarily brown with blue at the wing bases and orange bands on the edges of the dorsal wing surface. The ventral wing surface of both sexes is mostly white with small black dots, with smaller blue dots along the hind wing edges.

SEB adults are active from late April to early September. The SEB can have up to three broods per year with the first brood in late April to May, the second brood from late June to early July, and the third brood in August to early September (Emmel & Emmel, 1973). Adults are generally observed perching on their host plant or on other plants in the immediate vicinity, and have also been observed nectaring on nearby flowers. The females deposit single echinoid eggs on the leaves of the host plant after mating. These eggs hatch in about eight to ten days and the larvae begin feeding on the leaves immediately. Diapause normally occurs in the late or last instar of larval development, presumably in the second and/or third broods depending on climatic conditions. The mature larva is variable in color from blue, green, brown, and combinations thereof, and is densely covered with fine white hairs. Retractable glands located on the eleventh larval segment can be protruded when stimulated. Researchers believe these organs are attractive to ants (Emmel & Emmel, 1973).

There are several other Lycaenid butterflies classified as "blues" (subfamily Polyommatainae) that occur with the SEB in portions of its range. Some of these species are similarly sized and have markings that can be easily confused with SEB. Commonly observed sympatric butterfly species include the blue copper (*Lycaena heteronea*), southern blue (*Glaucopsyche lygdamus australis*), Boisduval's blue (*Icaricia icaroides*), acmon blue (*Icaricia acmon*), western tailed-blue (*Everes amyntula*), marine blue (*Leptotes marina*), pigmy blue (*Brephidium exilis*), Bernardino blue (*Euphilotes bernardino*), and square-spotted blue (*Euphilotes battoides*). SEB can be initially distinguished from many of these species by its relatively large size and its strong association with four-wing saltbush or quail bush.

Due to its extremely limited distribution in southern California and its propensity for isolated small colonies, the SEB can be easily impacted by anthropogenic disturbances. Many colonies in the Mojave Desert and Owens Valley are isolated and are probably not under any immediate threat, but other colonies found closer to growing desert communities and suburban Los Angeles cities are situated near major roads, railroad tracks and other developments, which may contribute to further decline. Some of these populations have already been extirpated; others are threatened by these impacts.



Some of the known localities for this species include the Lower Haiwee Reservoir in Inyo County, Mojave River area near Victorville, and Bouquet and Mint Canyons in Los Angeles County. It was thought that populations in the Mint Canyon area near Santa Clarita were extirpated in the late 1980's and early 1990's. However, Guy Bruyey did observe one extant SEB population in nearby Soledad Canyon as recently as August 1999. In April 2004, Guy Bruyey and CBI associate biologists identified a colony of SEB on the western portion of the Newhall Development site south of the Santa Clara River and Highway 126.

METHODS

The Salt Canyon site was surveyed for a total of five person-days by Guy Bruyey and CBI associate biologist Dean Wagner on April 27, May 7 and 11, 2005. Date and times of the survey visits, weather conditions at the start and end of each survey period, and survey results are summarized in **Table 2**.

Table 2.
Salt Canyon Site Butterfly Survey Information
April-May 2004

Date	Time PST	Weather	Wind	Biologists	Results
4/27	0930-1500	Partly Cloudy, 64-78 °F	1-2	GB, DW	1 SEB
5/07	0900-1500	Sunny, 71-85 °F	0-1	GB	No sensitive species observed
5/11	0900-1500	Sunny, 75-90 °F	0-1	GB, DW	No sensitive species observed

Results are for Salt Canyon site only and do not include observations on Oak Valley sub area
Biologists: GB (Guy Bruyey), DW (Dean Wagner)

The primary focus of this survey was to determine the presence or absence of SEB and their associated host plants within the Salt Canyon area. Special consideration was given to areas supporting native vegetation that may include specific larval host plant habitat requirements for any of the aforementioned sensitive species. The presence or absence of invasive, non-native plant species was noted in an effort to assess the level of previous disturbance in a given area. Other habitat requirements including the presence of potential nectar resources and the overall quality of the site as it pertains to potential topographical resources (i.e., hilltops) were assessed.

This field survey was conducted during daylight hours from 0900 to 1500 Pacific Daylight (Savings) Time. Temperatures recorded during the survey ranged from 71 to 90 °F (degrees Fahrenheit) and conditions varied from clear to partly cloudy with little or light winds (at or less than 1 Beaufort scale). Guy Bruyey and CBI associate biologist Dean Wagner identified



all butterfly species in the field. Other wildlife species (including other invertebrates) were identified in the field or later identified using various texts.

Daily weather data were noted on field forms and/or a digital audio recorder approximately once per hour during survey visits. Weather data were recorded using a digital anemometer (Beaufort scale of wind speed measurement), thermometer, and by visual observation and estimation of cloud cover and other pertinent daily weather characteristics (rain, drizzle, marine layer, etc.). Digital recordings were later transcribed to field forms.

Not all plants and/or associated butterfly species that may have been present on site were necessarily observable (or identified) during this survey. For an exhaustive assessment of the butterfly fauna of a given area, surveys would be required throughout the year. Guy Bruyey and CBI associate biologists general knowledge of the butterfly diversity for this area was utilized in an effort to locate specific habitats for some butterfly species. A California Natural Diversity Database (CNDDDB) records search was conducted prior to the start of this survey to determine the probability that sensitive butterfly species may be present on the site.

Nomenclature used in this report was primarily derived from Hickman (1993) for plants; Emmel et al. (1973), Howe (1975), and Emmel (1998) for butterflies; and Arnett (2000) for other insects. Additional resources are listed at the end of this report.

Site Description

Much of the site supports a mixture of disturbed and relatively undisturbed coastal sage-chaparral scrub and coastal sage scrub. Within Salt Canyon wash wetland plants associated with lowland riparian systems are present.

Other currently undeveloped lands associated with the Newhall Project (Potrero Valley, Long Canyon, Mesas East, Mesas West, Magic Mountain Entertainment, and others) occur to the north and west of the subject property. Guy Bruyey and CBI associate biologists conducted special-status butterfly surveys on these and other portions of the Newhall Project in April and May 2004. During the present (2005) study, small portions of the Oak Valley and Potrero Valley sub areas were included in surveys of Salt Canyon.

Topographically, the site is characterized by gently to steeply sloping hills and ridgelines with a mixture of shallow to steep canyons and flat mesa areas. Adjacent lands to the north within Potrero Valley and areas beyond are mostly flat in association with the Santa Clara River basin. The Salt Canyon site has a combined maximum vertical relief of roughly 450 feet between its highest and lowest on-site elevation points. Elevations on the site range from approximately 950 to 1400 feet above mean sea level.



Land use varies considerably adjacent to the survey area, and includes anthropogenic disturbances associated with Six Flags Magic Mountain Park northeast of the site, and other human-related disturbances such as actively cultivated agricultural fields, oil fields, fallow fields, cattle grazing, industrial and commercial areas, paved and unimproved roads, transmission lines, and other developments. Other less disturbed areas containing a mixture of coastal sage chaparral scrub and other vegetation communities are present on adjacent lands to the north, west, and south of the subject property.

Vegetation Characteristics

The subject property and surrounding areas are mostly undisturbed away from roads (both improved and unimproved) and activities related to existing oil wells and grazing, although low-growing weedy grasses and other annuals have invaded the native understory throughout the site, possibly out-competing many native low-growing forbs. The site is inhabited with a mixture of coastal sage scrub, coastal sage-chaparral scrub, mule fat scrub and valley oak woodland vegetation communities. Cleared or disturbed areas are present in association with existing roads and other developments, and disking was observed on a portion of the site during the current study. Portions of the site are in various stages of recovery as a result of the October 2003 "Verdale Fire," which burned approximately 8,700 acres in the region.

Coastal Sage Scrub (Holland Element Code 32200)

Coastal sage scrub (CSS) is comprised of mostly drought-deciduous shrubs with small leaves. CSS is primarily defined by the presence of California buckwheat (*Eriogonum fasciculatum*) and/or California sagebrush (*Artemisia californica*). Several patches of depauperate CSS occur in areas not in active cultivation on site, principally along the edges of shallow canyon areas. Relatively few associated CSS shrubs and other plants were present, but did include white sage (*Salvia apiana*), blue elderberry (*Sambucus mexicana*), woolly aster (*Lessingia filaginifolia*), chaparral yucca (*Yucca whipplei*), and deerweed (*Lotus scoparius*).

Non-native grasses occurring abundantly in these areas of the site included slender wild oats (*Avena barbata*), ripgut (*Bromus diandrus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*).

A matrix of open patches can be found throughout areas inhabited with CSS on site, containing a mixture of native and non-native low-growing annuals including owl's clover (*Castilleja exserta*), clarkia (*Clarkia* species), lupine (*Lupinus* species), and whispering bells (*Eriogonum penduliflorum*). Diversity of native annuals appeared relatively low on the subject property, probably due to the presence of invasive and dense non-native vegetation. However, due to the timing of the current survey, the presence or absence of many annual plant species within these open patches could not be adequately assessed.



Coastal Sage-Chaparral Scrub (Holland Element Code 37G00)

Coastal sage-chaparral scrub (CSCS) supports a mixture of sclerophyllous low chaparral shrubs and drought-deciduous sage scrub species, and is regarded as an ecotone between the two communities. These areas include floristic elements of both coastal sage scrub and lower chaparral, including shrubs such as California buckwheat, California sagebrush, chamise (*Adenostoma fasciculatum*), purple sage (*Salvia leucophylla*), and white sage (*Salvia apiana*).

Scattered throughout this vegetation community, within less dense (and open) areas, are native species including blue elderberry, sapphire woolstar (*Eriastrum sapphirinum*), tarplant (*Hemizonia* species), bush mallow (*Malacothamnus fasciculatus*), woolly aster (*Lessingia filaginifolia*), wishbone bush (*Mirabilis californica*), and other herbaceous annuals.

Mulefat Scrub (Holland Element Code 63310)

Mulefat scrub is dependent on periodic flooding and is characterized by the presence of mulefat (*Baccharis salicifolia*). Arroyo willow (*Salix lasiolepis*) and/or narrowleaf willow (*Salix exigua*) may be present (Keeler-Wolf, 1995). Small stands of this series mix with other wetland communities inhabited by willows and other associated trees, and with smaller shrubs inhabiting CSS and CSCS areas on the site such as black sage (*Salvia mellifera*) and big sagebrush (*Artemisia tridentata*). Other plants observed in association with this vegetation community on the subject property include quail bush, mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), milk thistle (*Silybum marianum*), and poison oak (*Toxicodendron diversilobum*).

Disturbed / Ruderal Habitat (Holland Element Code 11300)

Disturbed/ruderal (weedy) habitat includes areas dominated with non-native plant species such as ornamental and invasive exotic species. Non-native, weedy species are predominant in most open areas of the site. The most common invasive plants observed included short-pod mustard (*Hirschfeldia incana*), horehound (*Marrubium vulgare*), localote (*Centaurea melitensis*), cheeseweed (*Malva parviflora*), sourclover (*Melilotus indicus*), Indian clover (*Lotus purshianus*), and filaree (*Erodium* sp.). Other plants including Russian thistle (*Salsola tragus*), doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca scariola*), jimsonweed (*Datura stramonium*), telegraph weed (*Heterotheca grandiflora*), and various non-native grasses including foxtail chess, slender wild oat, and other unidentified grass species. A few native species that are tolerant of disturbance such as fiddleneck (*Amsinckia menziesii*) and dove lupine (*Lupinus bicolor*) were locally abundant along road and trail margins, and in other open areas of the site.



RESULTS

SEB were observed by Guy Bruyca within Potrero Canyon at the west-central edge of the Oak Valley sub area during a reconnaissance survey of previously identified occupied habitat on May 7, 2005. This SEB colony was first detected during 2004 Newhall Development surveys by Guy Bruyca and CBI biologists. It is strongly associated with *A. lentiformis* where two low-relief drainages converge just north of the Santa Clara River basin and gated site boundary. It is estimated that approximately five adult SEB were observed perched on *A. lentiformis* plants at this location during the present (2005) study. Based on the presence of other sympatric and synchronous butterfly species observed during this study, conditions appeared to be conducive to SEB seasonal flight activity.

A single SEB was observed at the northwestern edge of Salt Canyon on one date (April 27) during this study. This butterfly was first detected by 'beating' *A. lentiformis* plants in the area, which induced its flight away from the perched location. Although conditions appeared suitable for SEB activity (based on weather conditions at the time of this study), no additional SEB were observed at this location or other areas of the Salt Canyon site on April 27 or during two additional site visits on May 7 and 11, 2005.

Patches of *A. lentiformis* plants were observed throughout the Salt Canyon survey area but most appeared as very small patches or groups of scattered individual plants. None of the individual patches observed appeared as large as the patch located at the west-central portion of the Oak Valley sub area off-site. Atypically heavy runoff from winter storms in early 2005 may have adversely impacted *A. lentiformis* plants located within or immediately adjacent to Salt Canyon wash. A list of GPS marked *A. lentiformis* locations are summarized in Table 3.

Table 3.
Salt Canyon Site *Atriplex lentiformis* Locations*
April-May 2004

No.	<i>Atriplex</i> GPS Location	Approximate Patch Size	SEB
001	N 34° 23.586' W 118° 41.066'	4-6 Plants	Yes
002	N 34° 23.372' W 118° 40.345'	2-3 Plants	No
003	N 34° 23.036' W 118° 39.274'	2-3 Plants	No
004	N 34° 23.204' W 118° 39.892'	8-10 Plants	No
005	N 34° 23.342' W 118° 40.075'	8-10 Plants	No
006	N 34° 23.451' W 118° 40.648'	4-6 Plants	No

*Results do not include individual plants



Based on the results of this study, SEB numbers appeared to be significantly reduced in April and May 2005 at the Oak Valley sub-area. In 2004, approximately 20 adults were observed in late April and early May at this location. In 2005, only five were observed during the same calendar period. In other areas of southern California, Guy Bruyera observed that some butterfly species (many in the butterfly family Lycaenidae) did not respond favorably to near record precipitation levels in the late winter and early spring months of 2005. This may be due to one or more factors, including host plant condition, increased mortality of overwintering eggs and/or pupae, decline in or relocation of ant colonies (for some Lycaenidae), asynchronous emergence times, or other factors related to increased precipitation levels and prolonged cool or wet weather conditions. If SEB population levels in the region were adversely impacted by weather conditions in early 2005, the present results indicating only a marginal presence of SEB in Salt Canyon should not be considered conclusive.

Although historic records exist for areas northeast of the site in Bouquet, Soledad and Mint canyons, this species is presumed extirpated from most areas north and east of the site due to increased human-related activities including commercial and residential developments, agricultural operations, ORV use, and other disturbances.

It is our understanding that no recent data suggest that occupied habitat exists on any portion of the Salt Canyon site for the other sensitive butterfly species discussed in this report and based on the survey results, none is expected to occur.

Other Lepidoptera Observations

A total of twenty-eight (28) common butterfly species were observed on the property during the present survey (Table 4). In general the Salt Canyon site appears to support habitat conducive to an average or better diversity of butterfly fauna.

Table 4.
Salt Canyon Site Lepidoptera Observations
April-May 2005

Common Name / Scientific Name	April		May	
	27	7	11	
Anise Swallowtail (<i>Papilio zelicaon</i>)		X		
Western Tiger Swallowtail (<i>Papilio rutulus</i>)				X
Pale Swallowtail (<i>Papilio eurymedon</i>)		X		
Checkered White (<i>Pontia protodice</i>)		X	X	
Cabbage White (<i>Pieris rapae</i>)	X	X	X	
Alfalfa Butterfly (<i>Colias eurytheme</i>)	X	X	X	
Hartford's Sulfur (<i>Colias alexandria harfordii</i>)		X	X	
Sara Orange-tip (<i>Anthocharis sara</i>)	X	X	X	



Common Name / Scientific Name	April		May	
	27	7	11	11
Painted Lady (<i>Vanessa cardui</i>)	X	X	X	X
Red Admiral (<i>Vanessa atalanta</i>)	X			X
West Coast Lady (<i>Vanessa annabella</i>)	X	X		X
Chalcedon Checkerspot (<i>Euphydryas chalcedona</i>)			X	
Gabb's Checkerspot (<i>Charidryas gabbii</i>)	X	X		
Lorquin's Admiral (<i>Basilarchia lorquini</i>)				X
Buckeye (<i>Junonia coenia</i>)	X	X	X	X
Mourning Cloak (<i>Nymphalis antiopa</i>)	X			
Monarch (<i>Danaus plexippus</i>)	X	X		
Striated Queen (<i>Danaus gilippus strigatus</i>)			X	X
Funereal Duskywing (<i>Erynnis funeralis</i>)	X	X	X	X
Western Checkered Skipper (<i>Pyrgus communis albescens</i>)			X	X
Large White Skipper (<i>Heliovetes ericetorum</i>)			X	X
Behr's Metalmark (<i>Apolemia norna virgulti</i>)			X	
San Emigdio Blue (<i>Plebulina emigdionis</i>)	X			
Southern Blue (<i>Glaucopsyche lygdamus australis</i>)			X	X
Acmon Blue (<i>Icaricia acmon</i>)	X	X	X	X
Lupine Blue (<i>Icaricia lupini</i>)	X			
Pigmy Blue (<i>Brephidium exilis</i>)			X	X
Common Hairstreak (<i>Strymon melinus</i>)	X			X
28 Species Total				
	Total Daily Observations		15	22

X = species detected on site during specific survey date

Butterfly species commonly observed during the present study included painted lady (*Vanessa cardui*), west coast lady (*Vanessa annabella*), sara orange-tip (*Anthocharis sara*), cabbage white (*Pieris rapae*), funereal duskywing (*Erynnis funeralis*), and pigmy blue (*Brephidium exilis*). Other butterflies frequently observed included alfalfa sulfur (*Colias eurytheme*), buckeye (*Junonia coenia*), and acmon blue (*Icaricia acmon*). Although much of this study was conducted along Salt Canyon wash, the site and survey area includes topographic features such as ridgelines and prominent hilltops, which can be considered significant as potential hilltopping sites for butterflies in the immediate area. Common hilltopping species observed on scattered hilltops on portions of the Salt Canyon site include chalcedon checkerspot (*Euphydryas chalcedona*), anise swallowtail (*Papilio zelicaon*), and checkered white (*Pontia protodice*).

Additional butterfly species are expected to occur on site not observed during the present study due to seasonal restrictions and other factors. A complete list of butterfly species with potential for occurrence, based on the vegetation present, the site's location, and other factors, is included as part of this report (**Appendix A**).



CONCLUSIONS

During this survey effort, the entire Salt Canyon site was specifically surveyed for SEB and several other potentially occurring sensitive butterfly species described above. Additionally, a general butterfly inventory (both observed and expected to occur) was performed. Based on seasonal precipitation patterns in the late winter and spring months of 2005, butterfly activity was considered relatively 'productive' for most species based on the results of this study.

Based on the presence of SEB larval host plant patches and the presence of SEB adult observations during the present study, and other information presented in the above report, it can be reasonably concluded that SEB is currently present on the subject property. As discussed, the apparent low numbers may be the result of effects resulting from the extremely high amounts of rain the survey area received the previous winter. In order to fully determine the relative abundance of SEB in the Salt Canyon area, additional surveys would be required.



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Certification and Signature Page

Salt Canyon Site
Los Angeles County, California
July 31, 2005

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

_____ Date _____

Dave Crawford, Principal Biologist
Compliance Biology, Inc.
1936 N. Croydon Ave.
Camarillo, CA 93010

_____ Date _____

Guy P. Bruyea, Principal Biologist
Bruyea Biological Consulting
40107 Calle Breve
Temecula, CA 92592



Appendix A

Butterfly Species with potential for occurrence on the Salt Canyon Site
Los Angeles County, California
July 2005

Observed butterfly species (N=28) are indicated with an asterisk. Two asterisks indicate special status and/or narrow-endemic species. Butterfly species included on this list have varying degrees of potential for occurrence on the subject property. Potential for occurrence is based on a combination of known range (historical and present), host plant presence/absence, and other factors. Not all butterfly species that may be resident on the site were necessarily observed during this survey. For an exhaustive butterfly assessment, surveys are best performed from February to September to achieve a thorough inventory.

Family / Scientific Name

Order Lepidoptera

Papilionidae

Papilio rutulus

Papilio eurymedon

Papilio zelicaon

Nymphalidae

Danaus gilippus

Danaus plexippus

Commonynpha tullia californica

Agraulis vanillae incarnata

Basilarctia lorquini

Adelphia bredowii californica

Euphydryas chalcedona

Junonia coenia

Charitryas gabbii

Phycodes mylitta

Polygonia satyrus

Nymphalis californica

Nymphalis milberti

Nymphalis antiopa

Vanessa virginiensis

Vanessa atalanta

Vanessa cardui

Vanessa annabella

Riodinidae

Apodemia mormo

Common Name

Butterflies and Moths

Swallowtails

Western Tiger Swallowtail*

Pale Swallowtail*

Anise Swallowtail*

Brush-footed Butterflies

Striated Queen*

Monarch*

California Ringlet

Gulf Fritillary

Lorquin's Admiral*

California Sister

Chalcedon Checkerspot*

Buckeye*

Gabb's Checkerspot*

Mylitta Crescent

Satyr Angewing

California Tortoise-shell

Milbert's Tortoise-shell

Mourning Cloak*

Virginia Lady

Red Admiral*

Painted Lady*

West Coast Lady*

Metalmarks

Mormon Metalmark*



Appendix A (continued)

Family / Scientific Name

Order Lepidoptera

Lycaenidae

Athides halesus
Callophrys perplexa
Euphilotes bernardino
Incisalia augustinus iroides
Icaricia acmon
Icaricia lupini
Everes amyntula
Glaucopsyche lygdamus australis
Plebotina emigdonis
Hemiargus ceraunus gyas
Hemiargus sola alce
Leptotes marina
Brevipodium exilis
Lycaena xanthoides
Satyrium californica
Satyrium sylvinus sylvinus (or *sylvinus dryope*)
Strymon melinus

Pieridae

Colias eurylice
Colias alexandra harfordii
Colias eurytheme
Nathalis iole
Anthocharis celliura
Anthocharis sara sara
Eurema nicippe
Phoebis sennae
Pontia protodice
Artogeia rapae

Hesperiidae

Lerodea eufala
Paratrytone melane
Hylephila phyleus
Atalopedes campestris
Ochilodes agricola
Polites sabuleti
Erynnis funeralis

Common Name

Butterflies and Moths

Blue, Hairstreaks, Coppers

Great Purple Hairstreak
 Bramble Hairstreak
 Bernardino Blue
 Western Elfin
 Acmon Blue*
 Lupine Blue*
 Western Tailed-blue
 Southern Blue*
 San Emigdio Blue*
 Edward's Blue
 Reakirt's Blue
 Marine Blue
 Pigmy Blue*
 Great Copper
 California Hairstreak
 Sylvan Hairstreak
 Common Hairstreak*

Whites and Sulfurs

California Dogface
 Harford's Sulfur*
 Alfalfa Sulfur*
 Dwarf Yellow
 Felder's Orange-tip
 Sara Orange-tip*
 Nicippe Yellow
 Cloudless Sulfur
 Checkered White*
 Cabbage White*

Skippers

Eufala Skipper
 Umber Skipper
 Fiery Skipper
 Field Skipper
 Rural Skipper
 Sandhill Skipper
 Funereal Duskywing*



Appendix A (continued)

Family / Scientific Name
Order Lepidoptera

Hesperiidae (continued)
Erynnis tristis
Heliopetes ericetorum
Pyrgus communis albescens

Common Name
Butterflies and Moths

Skippers
Mournful Duskywing
Large White Skipper*
West. Checkered Skipper*



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